

Fig. 1d. Epigyne and internal genitalia as in Fig. 1b and 1f.

Measurements (in mm): Total length 24, Carapace 10 L & 7 W; Abdomen 15 L & 9 W. Legs I: 55, II: 45, III: 32 & IV: 46. Measurements (in mm) of original type: Total length 15, Carapace 6.5 L, and Leg I: 49 L.

**Distribution:** INDIA, Kerala: Ponnudi and Trivandrum (Ferguson 1906); Cochin (Gravely 1922), Bhoothathankettu, Thattakkad Bird Sanctuary, Munnar.

**Habit and Habitat:** *Psechrus alticeps* Pocock is a large, diurnal spider, spinning large sheet-like horizontal webs of 30-60 cm diameter. The spider remains upside down below the web, which is constructed among herbs or dark hollows at the base of large forest trees. It seems to prefer dark, shady and cool areas for web construction. The spider is very agile and escapes into the safety of its retreat at the slightest disturbance, which makes it very difficult to catch. Sometimes aggregates of many webs can be seen. Young individuals are more yellowish in colour, while older ones are usually more dark

brown. Unlike those of Araneidae, the web of *P. alticeps* is usually untidy, with many irregular threads below the sheet. It is permanent, not reconstructed each day. This species has not been reported from outside Kerala, the moist evergreen environment of which is presumed to be required for its survival.

## ACKNOWLEDGEMENT

We thank Principal, Rev. Fr. George Koyikara CMI, Sacred Heart College, Thevara, Kochi, Kerala, for facilities.

\*K. SUNIL JOSE,  
P. A. SEBASTIAN  
*Department of Zoology,  
Sacred Heart College,  
Thevara, Kochi,  
Kerala 682013, India.*  
\*Present address:  
*Department of Zoology,  
HSS of Jesus, Kothad, Kochi,  
Kerala 682027, India.*

## REFERENCES

- FERGUSON (1906): Travancore State Manual 1: 160  
GRAVELY, F.H. (1922): Common Indian Spiders. *J. Bombay nat. Hist. Soc.* 28: 1047.  
POCOCK, R.I. (1899): Diagnosis of some new Indian Arachnida. *J. Bombay nat. Hist. Soc.* 12: 751.  
POCOCK, R.I. (1900): Fauna of British India, Arachnida. Taylor and Francis, London: 211.  
TIKADER, B.K. (1977): Studies on spider Fauna of Andaman and Nicobar Islands. *Rec. zool. Surv. India* 72: 208.

### 32. TAXONOMIC STATUS OF THE BOMBAY LUGWORM, *ARENICOLA* (ANNELIDA: POLYCHAETA)

In 1951, Mr. R.G. Dandekar, then Junior Research Assistant at the Taraporevala Aquarium, collected lugworms (*Arenicola*) at Haji Ali bay (opposite the race course, near present Shiv Sagar) off Darya Mahal, the palace of the erstwhile Maharaja of Gwalior.

As he was transferred to another post in the Fisheries Department, he could not follow up on publishing his findings, and Mr. M.R.

Ranade, then Senior Research Assistant at the Aquarium, published a short note (Ranade 1952). It is surprising that Ranade claimed that he had "discovered well-developed specimens of *Arenicola*...".

It appears that, around the same time or a little later, Dr. K.K. Nair of the Wilson College also collected specimens from the same locality (Dr. S.P. Karmarkar, *pers. comm.*).

Subsequently, P.V. Wagh, a student of this college started visiting the Taraporevala Marine Biological Station (attached to the Taraporevala Aquarium and affiliated to the University of Bombay) to meet one of his colleagues who was doing her postgraduate work there. PVW and MRR joined hands and the former dissected specimens of *Arenicola* collected by Dandekar.

The two, in association with Dr. H.G. Kewalramani, then Curator of the Aquarium published a paper to the effect that the *Arenicola* of Bombay was a new species, and named it *A. bombayensis*. Prior to publication, the three had asked Dr. G.P. Wells, an authority on *Arenicola* species of the world (Wells 1955), for his comments. Despite Wells' opinion (G.P. Wells *pers. comm.*) that the morphological characters of the Bombay *Arenicola* were not significantly different enough to warrant creation of a new species, they went ahead and created a new species.

The Bombay *Arenicola* resembles *Arenicola cristata* Simpson in having 17 chaetiferous segments, 11 pairs of gills, and the first pair of nephridia being situated on the fifth segment. The only difference is that *A. cristata* has six pairs of nephridia, while the Bombay *Arenicola* has seven, and that the Bombay *Arenicola* had (according to Kewalramani *et al.* 1959) many statoliths while *A. cristata* has only one inside a closed statocyst.

Kewalramani *et al.* (1959) based their arguments on Berkeley and Berkeley's (1939) contention (for B. and B.'s creation of their new species *A. glasseli*), namely "the smaller size (of the sexually mature individuals), the presence of only 16 setigerous segments and 10 pairs of branchiae and particularly, the presence of seven pairs of nephridia, all of which are constant in the material, seem to sufficiently differentiate it from *A. cristata* to necessitate the establishment of a new species."

The creation of Bombay *Arenicola* as a new species rested mainly on Wagh's dissection where

it was claimed that the statocyst in the new species consisted of many statoliths, whereas *A. cristata* and *A. glasseli* (related species) had a single statolith. Subsequent dissections of specimens of Bombay *Arenicola* have, however, shown that it has a closed statocyst with a single statolith and that Wagh must have, inadvertently or otherwise, crushed the statocyst so as to find many statoliths.

In view of these subsequent findings that both the Bombay *Arenicola* and *A. cristata* have a closed statocyst with a single statolith, the only difference between the two species is that the number of nephridia in the Bombay *Arenicola* is seven pairs, against six pairs in *A. cristata*, indeed a minor one. *A. glacialis* Murdoch too resembles these two species in having 17 chaetiferous segments and 11 pairs of gills, but differs in having an open statocyst with many statoliths and with six pairs of nephridia, the first pair being on the fourth segment. *A. glasseli* Berkeley and Berkeley, while resembling *A. cristata* in having a closed statocyst with a single statolith and with seven pairs of nephridia, of which the first pair is on the fifth segment, differs in having only 16 chaetiferous segments and 10 pairs of gills. It is therefore felt that *A. bombayensis* does not have the status of a separate species and is, in fact synonymous with *A. cristata*.

Authors' Note.- Our findings and conclusions are based, apart from study of material examined subsequently, on first-hand observation as one of us (BFC) was at the Taraporevala Aquarium from 1951 to 1965, while SRS is an ex-student of Wilson College.

July 27, 2000

B.F. CHHAPGAR

*Bombay Natural History Society,  
Hornbill House, Mumbai 400 023.*

S.R. SANE

*'Sachetan', 60, Pestom Sagar, Chembur,  
Mumbai 400 089, Maharashtra, India.*

## REFERENCES

- BERKELEY, E. & C. BERKELEY (1939): On a collection of Polychaeta chiefly from the west coast of Mexico. *Ann. Mag. nat. Hist.* XI: 321-346.
- KEWALRAMANI, H.G., P.V. WAGH & M.R. RANADE (1959): Taxonomy of the Lugworm found off Bombay. *Journ. Zool. Soc. India* 11(2): 109-115.
- RANADE, M.R. (1952): Occurrence of *Arenicola* in Bombay. *Curr. Sci.* 21: 165.
- WELLS, G.P. (1955): Reports on the Lund University Chile Expedition 1948-49. A preliminary account of the Arenicolidae (Polychaeta). *Acta Univ. Lund N.F. Avd.* 250 8: 1-6.

### 33. ECOLOGICAL DISTRIBUTION AND POPULATION STRUCTURE OF MUD DWELLING *EDWARDSIA* (CNIDARIA: ACTINARIA) IN A MANGROVE HABITAT OF COCHIN AREA, KERALA

Mangrove areas are a characteristic coastal ecosystem in tropical and subtropical regions and the intertidal zone of this dynamic ecosystem supports a variety of animals such as molluscs, crustaceans, polychaetes and other taxonomic groups. Cochin mangroves are located along the lower part of the Cochin estuary (9° 52'-10° N and 76° 15'-76° 22' E). Most of the available information on the genus *Edwardsia* is descriptive (Athalye and Gokhale 1998), while details of the distribution pattern and population structure are scarce. The present paper describes the ecological distribution and abundance of a burrowing sea anemone *Edwardsia* sp. from the intertidal areas of the mangrove ecosystem in Guntu Island, Cochin.

A well established fringing mangrove area located in the lower reaches of the Cochin estuary was selected for the study. Mangroves are dominated by *Avicennia officinalis*, *Bruguiera* sp., *Acanthus ilicifolius* and *Clerodendrum inerme*. Less dominant and scattered species include *Acrostichum aureum* and *Rhizophora apiculata*. Sediment samples were collected at low tide from the exposed intertidal area by using a box corer (120 sq. cm area) up to 15 cm depth. Triplicate samples were made from three tidal zones — low tide, mid tide and high tide levels for two years (1989-91). Samples were pooled and sieved through a 0.5 mm mesh sieve, and the animals remaining in the sieve were collected. Sea anemones were

sorted out for further study. Ecological parameters of the study area were also determined. Water characteristics, namely salinity, temperature, pH and dissolved oxygen (Strickland and Parsons 1972) and sediment characteristics, namely sand, silt and clay percentages (Krumbein and Pettijohn 1938) and organic matter concentration (Walkley and Black 1934) were estimated.

**Water Characteristics:** The water characteristics of the study area are given in Table 1. The most important varying ecological factor was salinity, which varied from 1.2 to 28.7 ppt. The temperature, dissolved oxygen and pH varied from 29.5 to 33.5 °C, 1.6 to 5.4 ml/l and 6.2 to 7.6 respectively.

**Sediment characteristics:** The sand, silt and clay contents of the substratum are given in Table 2. The entire study area, irrespective of the three tidal levels, was composed of sandy type sediment, with organic matter content varying from 0.6 to 1.53%.

**Population density:** The population density of *Edwardsia* sp. is given in Table 1. Total density was higher (364/0.1 sq. m) in the high tide zone, followed by mid tide zone (275/0.1 sq. m) and low tide zone (11/0.1 sq. m). The monsoon (June-September) and post-monsoon (October-January) periods showed the highest population density.

The occurrence of the mud dwelling, burrowing sea anemone *Edwardsia* was earlier